**ERRATA SHEETS**
**WILDLAND-URBAN INTERFACE FUELS REDUCTION**
**ENVIRONMENTAL ASSESSMENT**
**YELLOWSTONE NATIONAL PARK**

## CHANGES TO TEXT

**Add to the Affected Environment section, after Table 8, page 63**, and "A number of amphibian and reptile species occur throughout Yellowstone National Park. Amphibians include the tiger salamander (*Ambystoma tigrinum*), boreal chorus frog (*Pseudacris maculata*), spotted frog (*Rana luteiventris*), and the western (boreal) toad (*Bufo boreas*). All four species have large ranges in western North America, and are common to abundant in Yellowstone in appropriate habitat (Koch and Peterson 1995). However, boreal toads may have declined (Peterson and Koch 1995). Given their dependence on specific breeding, foraging, and wintering sites, amphibians are vulnerable to local habitat changes. Reptiles found in Yellowstone National Park include two species of garter snakes, the wandering garter snake (*Thamnophis aelegans vagrans*) and valley garter snake (*Thamnophis sirtalis fitchi*), the rubber boa snake (*Charina bottae*), prairie rattlesnake (*Crotalis viridis viridis*), and bull snake (*Pituophis catenifer sayi*) (Koch and Peterson 1995).

Research on amphibian populations in the Lake area was conducted from 1993-1996 (Patla 1997; Patla and Peterson 1999) with monitoring continuing through 2002 (personal communication, Patla, 2003). Breeding ponds for the Columbia spotted frog were found in open and forested ponds south of the Lake Utility Area. A winter hibernation site was also located in a headwater spring of Lodge Creek within the Lake Utility area. Resident frogs consistently use the pools, springs, and portions of Lodge Creek, migrating across upland areas to reach these specific sites and temporarily inhabiting moist sites in the forest and meadows.

The (boreal) chorus frog was also found in the Lake area. The western (boreal) toad, a species that has been declining in the Yellowstone area (Koch and Peterson 1995), was encountered very occasionally. The wandering garter snake infrequently inhabits the Lake area, but other reptiles have not been noted. (D. Patla, Pers. Comm. 2003).

No specific surveys were conducted in the other proposed frontcountry treatment sites: East Entrance, Northeast Entrance, or the Bechler Developed Area, but a road corridor amphibian and reptile survey was conducted from Tower Junction to the Northeast Entrance (Sullivan and Peterson 1996). During that survey, no amphibians or reptiles were found near the Northeast Entrance, but a museum record of a spotted frog was recorded from Northeast Entrance. No backcountry cabin sites were surveyed for amphibians or reptiles. Site-specific surveys would be conducted prior to treatment.

The areas of proposed fuels treatment proposed in the Wildland-Urban Interface Fuels Management EA lie within potential amphibian and reptile habitat. Potential impacts to amphibian populations include site disturbance of site specific breeding ponds, winter

hibernation sites, foraging areas, and migration corridors between these sites. Coarse woody debris (downed logs and branches) provide important microhabitat sites that can be removed during fuels treatment. Potential effects of fuels treatment appear to be greatest in the proposed frontcountry developments because of the size of the treatment areas and the potential for ground disturbance by heavy equipment use. The backcountry sites pose less of a potential impact because of their smaller treatment area size and no heavy equipment would be used.

In 2001, park staff met with an amphibian biologist in the Lake area to describe early planning for fuels treatment, and discuss known frog habitats and potential mitigation measures to reduce impacts on frog populations. In order to mitigate effects on amphibian populations described in the proposed fuel treatments, the following measures are proposed:

1. An amphibian specialist will be contracted to perform site visits for the frontcountry treatment areas to perform an initial survey for amphibian and reptile populations and recommend appropriate measures during the layout and implementation to reduce potential impacts while retaining fuel treatment objectives.
2. Specific fuel treatment guidelines will be developed for front and backcountry treatment sites to avoid probable high quality amphibian habitats such as springs, seeps, ponds and other wetlands.
3. Down woody debris will be left in areas of potential frog migration corridors.
4. In proposed frontcountry treatment sites, heavy equipment will be restricted to corridors that will minimize ground disturbance activities.

With the above mitigation measures, the proposed alternative would have negligible effects on amphibian and reptile populations."

References:

Patla, D. A. and C. R. Peterson. 1999. *Are amphibians declining in Yellowstone National Park?* Yellowstone Science 7(1): 2-11.

Koch, E. D. and C. R. Peterson. 1995. *Amphibians and reptiles of Yellowstone and Grand Teton national parks.* University of Utah Press, Salt Lake City.

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**Change line 3, page 17** from "Fuel reduction activities associated with the preferred alternative include the use of mechanized (e.g., chain saws, power brushcutters) and hand tools to thin areas within a 400 foot perimeter from the edge of a structure in specific backcountry and front country sites" to "Fuel reduction activities associated with the preferred alternative include the use of motorized (e.g., chain saws, power brushcutters) and hand tools to thin areas within a 400 foot perimeter from the edge of a structure in frontcountry sites. Park personnel and contractors would perform fuels reduction with non-motorized, traditional or primitive tools in proposed wilderness areas. Motorized

equipment would not be used around the designated backcountry cabins, unless required in an emergency involving the health and safety of persons within the area."

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**Add to line 6, page 20** after "Mechanical fuel reduction in the treatment areas would be performed by park personnel and contractors using hand and power tools" to "No motorized equipment, motorized vehicles, or helicopter landings would be used to accomplish the project in proposed wilderness. Primitive tools like crosscut saws and axes will be used to carry out this plan within proposed wilderness."

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**Change Proposed Treatment Map on pages 7 and 125**. There are two South Riverside Cabins labeled. The lower one should have been labeled "Buffalo Lake Cabin."

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**Change paragraph 6, line 2, page 115** from "Three River Junction is a non-historic A-frame" to "The Three River Junction cabin is the historic Crystal Springs cabin. The integrity of the cabin was compromised when it was moved in the 1990s; thus it is not eligible for listing on the National Register."

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**Change line 36, page 80** from "The Clear Creek cabin is used by fisheries biologists as a research camp" to "Though not considered in this plan for fuels reduction, the Clear Creek cabin is used by fisheries biologists as a research camp."

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**Add to line 26, page 84**, "Park visitation numbers were up over 3 million in 2002."

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**Add to Appendix C, page 135**, a copy of the USFWS concurrence letter that stated the "may affect, but not likely to adversely affect" determination on May 31, 2002.

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**Change Appendix D, pages 171 to 173.** The MRA has been revised to clarify the proposed action. The attached MRA will replace the existing text.

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**SUBSTANTIVE COMMENTS**

NPS policy (Director's Order-12: *Conservation Planning, Impact Analysis, and Decision-Making*) requires the identification and analysis of substantive comments prior to reaching a decision. As defined by the Council on Environmental Quality regulations, substantive comments are those which challenge accuracy of analysis, dispute information accuracy, suggest different viable alternatives, or provide new information that makes a change in the proposal. Substantive comments to the environmental assessment centered on: NEPA scoping and range of alternatives considered, need to protect the cabins, scope and purpose of the project, effectiveness of the preferred alternative, recommendations on prescriptive methods, suggested additional alternatives, the National Historic Preservation Act, wilderness management, minimum tool analysis, cost benefit analysis, and threatened and endangered species. The topics, which are addressed below, resulted in minor changes to the text of the environmental assessment.

## NEPA SCOPING

1. Comment: The scoping notice included only the three developed areas, not the proposal to thin around the 31 backcountry cabins. This failure to scope the entire project prohibits the public from raising particular issues related to the backcountry cabins.

Response: As identified by the Council on Environmental Quality (CEQ), the purpose of scoping is to determine the scope of environmental issues and alternatives to be addressed. It does not require that the proposal be finalized; the purpose of scoping is to elicit response on issues and alternatives. Although it is not technically required by National Park Service EA guidelines, the park agrees that scoping with the public is important. Discussions about fuels treatment around the backcountry cabins occurred with an interdisciplinary team of National Park Service staff after the public scoping letter was sent out. That is why the information was not included in the scoping letter.

The public is not prohibited from raising particular issues related to the backcountry cabins just because there was no opportunity to do so through scoping. Public comment on the NEPA document (EA) is a formal opportunity to comment on a specific project. Issuing the EA for a 30-day public review allowed the public to comment on the proposal, which included the backcountry cabins.

## NEPA RANGE OF ALTERNATIVES CONSIDERED

2. Comment: The Wildland-Urban Interface Fuels Management EA (WUI EA) provides detailed analysis for only two alternatives – a No-Action alternative, and the Preferred Alternative. . . . By not including a completely non-motorized alternative for the 25 cabin sites located within recommended wilderness, the EA has failed to meet NEPA's requirement for rigorously analyzing a range of reasonable alternatives. Many if not most of these old cabins were built by completely non-motorized means and are accessed on foot, horseback, or snowshoe, so it is clearly possible to access and manage them today through non-motorized means. The EA discarded this potential alternative from detailed analysis not because it isn't completely possible and reasonable, but for reasons that are invalid under NEPA, such as time and efficiency.

Response: "Normally, an EA should fully analyze a range of reasonable alternatives. However, if the interdisciplinary team finds that no reasonable alternatives exist and that the proposal does not have the potential for significant impacts, the EA may instead include a discussion of alternatives considered but rejected, and the reasons why these were rejected. In this case the EA would analyze only the no-action alternative and the park's proposal (Director's Order 12, 5.4 D-1)."

The two alternatives offered represent the best options available to the NPS. The No-Action alternative is the acceptance of the status quo, not a decision to not take action to protect structures in wilderness should there be a fire. This alternative would entail severe fuels reduction in proximity to a potentially threatening fire. Other protection measures such as installation of sprinkler systems would also be implemented.

Numerous firefighters would be required to implement these tasks in potentially hazardous circumstances, often over the course of several days. Concerns include working in front of an uncontrolled fire without adequate safety zones. A completely non-motorized alternative for treatment around the backcountry cabins was not considered because there are times when motorized tools, such as chainsaws, would be required in an emergency involving the health and safety of persons in a particular area.

The Preferred Alternative encompasses all of the proactive measures that could be taken prior to a threatening fire event. These measures would include incorporating fireproof structural adaptations such as metal roofs as well as sprinkler system installation and fuels treatment. The proposed fuels reduction treatment is milder than that suggested by the literature, due to the fact that other measures would be implemented as well. If the park only considered fuels treatment, the required amount of canopy or fuels removal would have to be considerably larger. Issues regarding methodology are addressed through the Minimum Tool Analysis process, not presented as alternatives.

**NEED TO PROTECT CABINS**

3. Comment: The EA asserts that it is necessary to protect the 25 wilderness cabins through fuel reduction treatments because the cabins are "essential elements to park operations." However, the EA fails to disclose what "essential" administrative functions these 25 cabins provide . . . The EA does not suggest that these cabins are still primarily utilized today by rangers travelling on snowshoes to protect park wildlife, and no other critical "need" for these structures is disclosed in the EA . . . The EA provides no compelling "need" for the continued existence of 25 old line cabins. There is certainly no evidence put forth that the cabins are the minimum necessary for the purpose of protecting and administering the wilderness resource.

Response: Some administrative functions of backcountry cabins are described on page 80 of the EA, under "Park Operations." In detail, today's network of patrol cabins is vital to the preservation, maintenance, and scientific investigation of Yellowstone's 2.2 million acres, most of which is roadless backcountry and proposed wilderness. Backcountry cabins are in place to facilitate wilderness and resource protection, including boundary patrol, antler poaching patrols, thermal basin protection, wildlife protection, visitor protection, visitor management, support of backcountry emergency operations, backcountry trail clearing and maintenance, park-sponsored research and resource management, and fire management.

Yellowstone's backcountry cabins are an important tool for present-day backcountry management of the park. They are also part of the history and tradition of park management, as described in the "Cultural Resources--Affected Environment"section of the EA on pages 67-69.

The idea of a system of patrol cabins began during the military administration of the park. By 1890, Acting Superintendent Captain Frazier Boutelle planned for a system of

"snowshoe cabins" to be built in the remote areas of the park. Many of this first group of cabins (on Gneiss Creek, the Gallatin River, Gallatin Lake, Christmas Tree Park, Crystal Springs, Observation Peak, Geode Creek, Hellroaring Creek, Slough Creek, the Lamar River, Astringent Creek, Park Point, at the mouth of Trapper's Creek, on west shore of Heart Lake, on the Lewis River - below the mouth of Aster Creek, at Rocky Ford on the Bechler River, near Buffalo Lake, at Shoshone Geyser Basin, and near Mary Lake) were built on sites where modern patrol cabins are located today.

The 1972 *Wilderness Recommendation* for Yellowstone National Park clearly states that a network of cabins is to be maintained within proposed wilderness. The proposal states:

> Five snow survey courses, five fire lookouts, 22 backcountry campsites, one fish trap, a telephone microwave reflector, and 24 patrol cabins were in enclaves of varying sizes in the preliminary wilderness proposal. It is now recommended that all but six of these sites be included within wilderness since the facilities are the minimum tool, equipment or structure necessary to accomplish permitted activity.

In the 1994 *Draft Backcountry Management Plan* for Yellowstone National Park, the NPS made it clear that the park intends to maintain a network of both historic and non-historic backcountry cabins, stating:

> In addition to those already described, facilities in the backcountry include patrol cabins, barns, and sheds used for administrative use . . . The majority of the cabins and fire lookouts are historic; maintenance and use occur regularly . . . the park will apply the "minimum tool" concept in the backcountry when considering new or existing administrative facilities . . . A cabin or other facility may be considered for replacement (non-historic structures) or relocation (historic structures), following proper compliance. New cabins may be proposed where use levels or resource protection requires a patrol presence for most of the summer or fall seasons.

More recently, the NPS has stated the park's intention to maintain the network of patrol cabins. One of the stewardship goals in the *State of the Parks* report (YNP 1999) states: "Backcountry cabins are well maintained and sustainable operational practices have been adopted."

Backcountry use has increased steadily since 1987; overnight backcountry use currently exceeds 45,000 annual visitor-use nights. Horse travel accounts for approximately 7,000-8,000 stock use nights per year. Day use does not require a permit and appears to be less widely distributed than overnight use. Some very popular trails receive high intensity use; most use occurs June to September. Day use was monitored in 1992 and varied considerably depending on trail location, length, and destination. Figures ranged from 0 to 109 people per day per trail. Given this level of use, the need to effectively patrol for resource protection and visitor safety, to maintain trails, and to monitor natural resources

throughout Yellowstone's 2.2 million acres, the park intends to maintain a dynamic network of both historic and non-historic backcountry cabins.

4. Comment: What I think needs rethinking is the part of the plan to protect some thirty backcountry cabins and some development . . . Some are in need of lots of repair. The remote location of these cabins would preclude saving these in the event of similar fires to 1988. Thinning around them does not make economic sense. If a large fire occurs, no one is going to imperil the fire crews to save these structures. Why, then waste money and resources on thinning around them?

The historic old line cabins have historical value but I question whether that value is significant enough to justify the high cost (in either dollars or degradation of wilderness character) of their maintenance in perpetuity. . . .

Response: Given the park's intention to maintain a network of backcountry patrol cabins, park management has made cabin protection a high priority. The hazard fuels reduction project would provide a defensible space, so that firefighters are not put in a dangerous situation. See response to comment 70 for costs associated with cabin maintenance and replacement.

**OVERALL PURPOSE OF PROJECT**

5. Comment: I understand Yellowstone is under pressure to conform to the Bush Administration's misbegotten "Healthy Forests Initiative." I do not believe this one-size-fits-all approach to thinning forests is the correct approach to reduce fire risk.

6. Comment: If thinning is prescribed at all, it should be carried out immediately adjacent to residential areas along forest boundaries, where eliminating trees might protect homes. The president's initiative and this EA, however, calls for thinning backcountry along with the front country, where thinning is neither an economically nor environmentally sound choice.

7. Comment: The Bush plan to help the logging industry under the guise of fire control must be resisted wherever possible.

8. Comment: Using fires as an excuse to clear and cut forests is dishonest and unlawful.

9. Comment: We are unalterably opposed to the Bush administration's "Healthy Forest Initiative" application to a national park.

10. Comment: Thinning might help to reduce wildfires if only brush and little debris were culled. When "thinning" is an excuse to cull full-grown trees, this is not thinning but a devious way to circumvent forest preservation initiatives.

**The following response addresses comments 5-10:**

Response: While fuels reduction around backcountry structures has been done sporadically for decades, this project is part of an ongoing program begun during the fires of 1988 and continued until present. Following the Cerro Grande fire at Los Alamos, New Mexico, fuels management issues came to the nation's attention. There is no intent to "open the park to logging." There is no acreage quota. The park is engaging in a long-term program to protect valuable administrative sites, historic buildings, and the lives of firefighters tasked with protecting them.

The President's Initiative calls for thinning broad sections of forest, (presumably not in national parks) to decrease potential fire intensity, enhancing suppression capabilities, and firefighter safety. The park's proposal does not address landscape scale thinning, nor attempt to limit fire spread. All activities are restricted to the immediate environs of administratively valuable structures and are intended for their protection only.

## SCOPE OF PROJECT

11. Comment: How many more cabins are in Yellowstone's backcountry, and why are they not on the list in the EA? Why is thinning necessary around the non-historic cabins?

Response: There are 31 sites listed for treatment and 8 that are not. The remaining 8 cabins were judged to be adequately defensible without risking firefighter safety in the event of a fire. (They did not have sufficient fuel around them to warrant fuel reduction.) Non-historic cabins are also considered in this proposal because of their administrative value to overall park management.

12. Comment: It is unclear why any thinning needs to occur in the forest around cabins that are surrounded by burned area from the 1988 fires. Specific cabins that come to mind are Cache Creek, Cougar Creek, Fawn Pass, Calfee Creek, and perhaps the Outlet Cabin.

Response: Contrary to popular belief, the 1988 burns are very capable of carrying fire aggressively due to the amount of downfall, the proliferation of grasses and regeneration, and the extreme drought conditions of recent years. This phenomenon has been observed and measured on the Boundary Fire in 2000 and the Phlox Fire of 2002. While recently burned lodgepole pine forests may be somewhat resistant to reburning, they will still burn. Park staff have observed in recent years that reburns do occur under conditions of extreme drought and/or very strong winds. Fire behavior is of very high intensity, but rates of spread are extremely variable and usually dependent on wind speed and/or direction. Given this type of fire behavior and the "jackstrawed" heavy fuel load in recently burned areas, it is extremely difficult and unsafe to employ additional protection measures on cabins in this forest type in advance of an active fire.

13. Comment: The "cabin" at Union Falls is little more than a tarpaper shack, worth maybe $2,000. Spending $20,000 to thin around this ugly eyesore would be worse than spending $300,000 on an outhouse as the NPS has already done. . . .

Response: The Union Falls cabin is a simple, non-historic structure, but its location is important to resource management and visitor protection of the park, due to the high day use area at Union Falls.

The cost of replacing the cabin, not the cost of the cabin, is used to calculate the cost-benefit of fuel reduction. There are many hidden costs associated with cabin replacement. The cost of replacing each cabin would be different depending on location, design costs, costs associated with wilderness construction (whether the building was constructed with local materials or fabricated offsite and transported in), and natural and cultural resource compliance.

14. Comment: Does the Lake utility area include the Lake Yellowstone Hotel area?

Response: No, the Lake utility area is an employee residential and maintenance area north of the Lake Hotel area.

15. Comment: The cabins on Observation Peak and Lamar Mountain are in subalpine areas that may contain whitebark pine. Any thinning around these two cabins would be obtrusive…thinning should simply not occur around these cabins, because mountaintops and subalpine areas are too special to subject to this form of heavy-handed manipulation.

Response: The NPS considers all fuels manipulation to be obtrusive. The project sites would be treated with the same degree of sensitivity as all other areas being treated. All cutting associated with this program would be implemented with a phased, minimalist approach. Whitebark pine would not be cut.

**EFFECTIVENESS OF PREFERRED ALTERNATIVE**

16. Comment: Will thinning really help lessen the intensity of a fire? Will it really protect remote cabins from the types of fires expected due to years of fuels build-up that has resulted from suppression policies?

Response: Thinning decreases fire intensity. Yellowstone National Park fire history studies do not indicate that suppression activities have appreciably altered the fuel structure of the park. It is the nature of the even-aged lodgepole forest to grow and build a fuel load over many decades; then experience periodic stand replacement fires.

Research shows that fuels reduction contributes to the lowering of the probability of ignition from both ember shower and radiant heat.

17. Comment: When conditions are right, fires burn through logged, thinned, or untouched forests in Greater Yellowstone with equal abandon. Drought, exactly what

much of the West has experienced the past few years, is the most significant factor influencing fire…Thinning lodgepole stands may actually aggravate fire conditions by opening up areas and removing moisture from the forest floor, creating drier forest environments. As lodgepoles are shallow rooted, thinning them also increases the likelihood of trees blowing down, creating conditions more susceptible to conflagration...We also request that the National Park Service (NPS) address the effect of thinning on reducing fire intensity for the specific tree-species stands it is proposing to thin. If fire intensity will not decrease with thinning, or if little information is known on how thinning effects fire behavior in the stands that will be treated in YNP, we do not see the legitimacy of the proposed projects.

Response: Fire behavior varies among different forest types. Removing trees doesn't necessarily result in a drying out of the forest floor. A high level of water loss occurs due to natural transpiration. At this scale, water loss would not be meaningful. Thinning will increase the possibility of windthrow, thus when planning treatments, individual sites will be evaluated accordingly. (See page 15 of the EA.) Research suggests that thinning in lodgepole forests (Omi and Kalabokidis, 1991) as well as some other coniferous forest types (Omi and Martinson, 2002) can result in decreased wildfire severity.

The park is committed to bringing crown fire to the ground via appropriate crown spacing and by creating safety zones for firefighters. Surface fuels may accumulate over time, but the objective of reducing the risk of crown fire will have been achieved.

Sources:

Omi, P.N. and K.D. Kalabokidis. 1991. Fire damage on extensively vs. intensively managed forest stands within the North Fork fire, 1988. Northwest Science 65(4): 149-157.

Omi, P.N. and E.J. Martinson. 2002. Effects of fuels treatment on wildfire severity. Final Report submitted to the Joint Fire Science Program governing board. Western Forest Fire Research Center, Colorado State University, Fort Collins, CO, 36 pp.

18. Comment: . . . Cohen has stated that structures may ignite from firebrands resulting from a fire that could be miles away. Don Despain, USGS-BRD ecologist who has conducted extensive fire studies within YNP, agrees with Cohen. Both scientists agree that the NPS would need to thin areas several miles away from structures to effectively combat firebrand ignitions (Cohen 2000; Cohen, pers. comm.; Despain, pers. comm.). While we do not promote this larger thinning idea, we point out these facts to demonstrate that the proposed thinning of 400 feet around structures will be an inadequate and unneeded action to protect YNP structures from fire in the proposed treatment areas. While developed areas may benefit from such proposed thinning and potential decrease in fire intensity, we encourage NPS to look into other solutions in addition to thinning.

Response: The purpose of fuels reduction is not to stop fire completely. The project is designed to create defensible space around the cabins so that fire protection actions can be set up prior to a fire. The approach would take several facets, based upon the commitment park management has made to the backcountry cabin program. They are valuable administrative sites that enhance resource protection. Defensible space will help save the structures.

The NPS is committed to firefighter safety. In order to protect these structures, firefighters may be in the vicinity doing fuels work, deploying sprinklers, applying heat reflective wrap, and installing pumps and hoses as the fire approaches. Combining Dr. Cohen's ignition distance data with safety zone specifications in a primary treatment area and secondary feathered cut, with adequate crown spacing, would provide the protection needed.

19. Comment: Lodgepole pine typically burns in a crown fire, and the forest regenerates as an even-aged stand. Thus it cannot be argued that it needs any mechanical manipulation to restore a natural condition. Any thinning in lodgepole pine would be aimed at "fireproofing" the forest, an impossible and ill-considered task.

Response: This program is not an attempt to restore natural forest conditions by mechanical manipulation or to influence landscape level fire behavior. The project is part of an integrated program to protect the backcountry cabins and enhance firefighter safety.

20. Comment: The frontcountry locations listed are occupied year-round and are proximal to firefighting apparatus, which would furnish adequate protection. The chances of a large, unnoticed fire that would pose a threat of total destruction to these structures is unlikely. . . .Therefore, these locations should not have the trees trimmed and thinned.

Response: The use of firefighting apparatus alone has proven ineffective. Through this project, the park is taking a more proactive, integrated approach to structure protection and firefighter safety.

21. Comment: Removing trees and thinning overstory on 300 acres (or less than 0.02% of the park) will provide long-term beneficial effects to wilderness by helping reduce the potential for "extreme fire-suppression activities" and by reducing chances of fire "advancing on the cabins and continuing across the wilderness" . . . it is completely implausible to say that fuel reduction on such a tiny acreage in the park is somehow going to reduce chances of a wildfire spreading throughout the park and onto adjoining national forest wilderness lands!

Response: This program does not address landscape scale thinning, nor attempt to limit fire spread, but is an effort to ensure that the presence of a backcountry cabin is not a trigger for full fire suppression. It is not the intent of the EA to decrease the potential for large wildfires in the park. All activities are restricted to the immediate environs of

administratively and culturally valuable structures and are intended for their protection only. The intent of the project is to protect the cabins in advance of fire, instead of implementing actions under emergency conditions. Being able to do this advanced work methodically and carefully, with resource consultation, would have beneficial effects on wilderness.

22. Comment: The cabins are going to burn in a fire no matter how many trees you cut down, you will still have ground fuel & that is enough to set the cabin on fire. All the remote sprinkler stuff, etc…you can do with out.

Response: Fuels reduction around backcountry cabins has been done sporadically for decades, and intensively during the 1988 fires. Its effectiveness has been demonstrated repeatedly. Examples include the Heart Lake Cabin (fuel reduction and establishing a sprinkler system) in response to the 1979 Beaver-Heart fire and 1981 Witch fires. During the 1988 fires, Cabin Creek and the Northeast Entrance to Yellowstone are examples of areas where fuels reduction played a significant role in preventing structure loss. The Pelican Cone fire lookout was wrapped with fire shelters in response to the 1994 Raven fire.

Also, the park has routinely staged crews at various cabins in anticipation of implementing cabin protection measures. While crews were stationed at the cabins, they routinely did some fuels reduction, and set up pumps and sprinkler systems in the event of the fire blowing up and threatening the cabin. As an example, these precautionary measures were taken at the Buffalo Lake Cabin, in response to the 2000 Plateau fire.

Nationally, the "Firewise" program is an integrated structure protection program that is very similar to this preferred alternative. Details are available on the Internet at http://www.firewise.org or through various land management agencies and fire departments.

23. Comment: The EA makes the contradictory claim that while Alternative B will have limited impacts because the treatment areas are small, Alternative A will lead to increased potential for uncontrolled wildfire. It is hard for a wildfire layman to understand how clearing some trees in the vicinity of widely-scattered remote cabins is going to decrease the potential for large wildfires in the park and adjacent wilderness. Appendix E reveals that many of the cabins are in or border areas of apparently natural fire breaks, such as meadows bordering creeks and rivers. Some are within large stands of forests where wildfire seems highly unlikely to be stopped by the proposed treatment, given the fires we have witnessed over the past 15 years. It would be helpful if the EA could explain more carefully the basis for its main assumptions.

Response: There is no guarantee that any fuels treatment or structural enhancement will prevent a wooden building in a forest from burning. There are natural barriers that would be used in treatment/protection plans. Combining research on ignition distance data with safety zones specifications into a primary treatment area and secondary feathered cut with adequate crown spacing, will provide the protection needed.

The NPS believes that this is a minimalist approach to incorporating fuels management into structure protection goals based on published research. Fuels treatment is not a stand-alone solution to structure fire protection. Shelter wrap, pumps and sprinklers and metal roofing are all being integrated to meet this challenge. The intent of the feathered cut is not to eliminate ember production, but to reduce it to a more manageable level.

## RECOMMENDATIONS ON PRESCRIPTIVE METHODS

24. Comment: We also remain concerned with the amount of land under consideration for thinning treatment. . . .While we recognize that the 400-foot figure is derived from a calculation involving the average flame length for Yellowstone fuels and the average zone for firefighter safety, there is evidence that contradicts the need for such a large amount of land to be treated. Jack Cohen, a research physical scientist at the Rocky Mountain Research Station, Fire Sciences Lab in Missoula, Montana, found that a building's structural characteristics and its immediate surroundings ultimately determine that building's ignition potential. His research indicated that buildings' ignitions directly resulting from heat exposure are not likely unless flames occur within 40 meters of the structure (Cohen 2000). Following Cohen's findings, in order to reduce the risk of building igniting due to heat intensity alone the NPS would only need to consider fuel reduction treatment in an area approximately 131 feet (40 meters) around structures.

Response: Dr. Cohen's distance of a 131 feet (40 meters) was a clear-cut between a mature lodgepole forest and a wooden structure and applied to radiant heat ignition. This information has been factored into the program, but it is not a stand-alone treatment. The NPS must also protect cultural landscapes, and cannot simply remove all vegetation within 131 feet of a structure. The 400-foot radius treatment area proposed in this plan reflects adequate cabin site protection and adequate firefighter safety zones without implementing a full clear-cut landscape effect.

25. Comment: …I do not approve of the method in which these trees are removed [along roadways], that being, cutting them down and using them for firewood. The trees along the road should be pushed over using heavy equipment such as the hydraulic arm of a rubber-tire backhoe. This achieves the same objective in making the roadway safe, and leaves the tree in the ecosystem –, as it should be.

Response: Roadside hazard tree management is a different program than hazard fuels management and is not addressed in this EA. However, pushing is a technique that has been used on occasion for hazard tree management in developed areas and along roadsides. The technique has limited applicability to fuels management in the backcountry.

26. Comment: The Board (Park County Wyoming Commissioners) suggests that the "resulting debris" which is "hauled off-site" be considered as merchantable timber if possible.

Response: This possibility will be explored for the frontcountry sites.

27. Comment: The EA does not seem to indicate if fuel management will be an on-going management task, or will be limited to a short time frame. Does YNP envision a permanent conversion of forest types in the targeted areas? What level of effort is envisioned over the next 10-20 years?

Response: The objective is to maintain an uneven-aged stand within the 400-foot perimeter. Opening the canopy will make the stand susceptible to some increased wind throw. At the same time the increased light reaching the forest floor will spur growth of seedlings and saplings. The resulting condition will be monitored over time and subsequent treatments will be implemented as the crowns on young trees approach the required 20-foot crown interval. Fire and resource management staff will implement these treatments as a team.

## SUGGESTED ADDITIONAL ALTERNATIVES

28. Comment: . . . we request the inclusion of an alternative that achieves structure protection through non-timber harvest/non-stand manipulation means. Although the Yellowstone National Park Structure Protection and Firefighter Safety Hazard Fuels Management Guidelines states that there is no intent on the park of the YNP Fire Management Staff to modify any structure as part of the planning process, we nonetheless request that such a consideration be taken into account prior to the decision.

Response: The Wyoming State Historic Preservation Office (SHPO) is supportive of replacing materials, such as roofing on backcountry cabins, with fire resistant materials when maintenance or replacement is needed. The park is committed to integrating this into the maintenance program for backcountry cabins.

Engineering-oriented solutions such as sprinklers, shelter wrap, and integration of fire resistant materials are not a stand-alone solution to the challenge of protecting backcountry administrative and cultural sites and addressing firefighter safety concerns. These methods will be incorporated with fuels reduction.

29. Comment: The new alternative should prioritize fireproofing cabins based on their historic nature and ensure that such treatment complies with wilderness statues and policies.

Response: Priority for treatment is determined by fuel loading, demonstrated administrative importance, and historic status. These considerations are developed within the framework of national wilderness management policy and are integral components of the provisions of the preferred alternative.

30. Comment: If [the cabins] burn, rebuild them if these serve a legitimate purpose in keeping with the mission of Yellowstone Park.

Response: We agree. In the event a cabin burned, an assessment would be done to determine whether it was critical to park operations. If so, the cabin would be rebuilt.

31. Comment: We should not ignore management. . . .techniques the American Indians developed over 1000s of years and implemented successfully. A century or more of fire suppression on Federal lands is the root of the problem. Controlled burns are far more effective tool in preventing conflagrations.

Response: Man-ignited prescribed fire has a place in fuels management, but it is a poor substitute to wildfire in achieving the goal of maintaining the natural fire and vegetative regimes and is not an alternative considered as part of this program. In addition, the lodgepole forest is a very unpredictable environment for achieving specific fire use goals. This is due to the fact that those conditions conducive to the type of intensive burning needed for true fuels reduction are only a shade different from those that will lead to uncontrollable wildfire. Prescribed burning may be considered as part of a future planning document in conjunction with mechanical fuels treatment, but not in this project. The mechanical treatment is required in order to keep the intensity of the prescribed burn at a more controllable level.

32. Comment: Thin and burn near facilities where you can protect human life and valuable property.

Response: This option is a component of the park's current fire management plan.

33. Comment: Protect the cabins that are there by building them as necessary, but leave the forest alone…It would seem responsible and of common sense to place them a sufficient distance away to keep them from harm…If it were to burn to the ground could we not use the funds we save by not thinning the trees to rebuild it?

Response: This approach would be prohibitively expensive and counter to many tenets of NPS wilderness and administrative policy. In addition, cabin placement was originally based on availability of fresh water and proximity to patrol needs. While moving cabins for administrative purposes has occurred in the past, relocating them is a very expensive and intrusive activity.

34. Comment: Given the proposed areas for treatment, we request that a thorough analysis be provided that states what buildings are considered historic in each area. . . . with an analysis of their historical importance.

Response: The Wyoming SHPO concurred with the park's determination that 15 backcountry cabins were eligible for the National Register of Historic Places. These cabins include Cache Creek, Cold Creek, Cougar Creek, Fawn Pass, Fern lake, Fox

Creek, Harebell, Heart Lake, Hellroaring, Mary Lake, Miller Creek (also called Calfee Creek), Nez Perce Creek, Lower Slough Creek, Thorofare, and Upper Miller Creek).

The Montana SHPO concurred with the park's August 2001 determination that three cabins were eligible for the National Register (Crevice Mountain, Blacktail Deer Creek, and Buffalo Plateau).

The Lamar Mountain cabin, moved from the upper Lamar River in 1992, was previously determined eligible. Both the Peale Island and the Clear Creek cabins have been determined eligible for the National Register as extant units of the Lake Hatchery Historic District. Buffalo Lake and South Riverside cabins are proposed as eligible to the National Register as extant units of the Fort Yellowstone Historic District. Appendix B on page 109 of the EA provides a list of cabins, dates of construction, and their historic status.

**NATIONAL HISTORIC PRESERVATION ACT**

35. Comment: For historic cabins, there is no legal requirement in the National Historic Preservation Act that prevents NPS from allowing the structures to burn. With the legal constraints of the Wilderness Act and NPS regulations and policies concerning wilderness management, the desire to protect cabins is necessarily outweighed by the legal requirements surrounding wilderness management.

36. Comment: Some of the cabins are listed on the National Historic Register, and others are eligible for listing. This in no way means that their continued physical existence is mandatory. The National Historic Preservation Act requires agencies to preserve the historic values of eligible sites, which can and often is accomplished through detailed inventorying, recording, and documenting those historic values and keeping that information on hand for the benefit of present and future generations.

37. Comment: The NHPA does not mandate that all historic properties be physically restored or even maintained. It does require that, at a minimum, their historical values be preserved through documentation.

**The following response addresses comments 35-37:**

The National Historic Preservation Act does not require all historic buildings be preserved. Agencies can remove buildings that are listed on the National Register of Historic Places by following the proper procedures, including mitigating measures such as detailed inventory and documentation. However, the Act does require that the NPS consult with appropriate State Historic Preservation Officers on plans or actions that could affect historic properties.

In Section 2 (c) of The Wilderness Act, Congress stated that "an area of wilderness is further defined to mean in this Act an area of undeveloped Federal land…which (1) *generally appears* to have been affected *primarily* by the forces of nature, with the

imprint of man's work *substantially* unnoticeable." The qualifiers in this portion of the sentence are significant. The area does not have to be "pristine" or "pure." It does not have to have no imprint from human activities.

NPS Director's Order 41, Wilderness Management, states that "management actions affecting cultural resources in wilderness may include a variety of management options including preservation of a site or property, protection from vandalism, professional level documentation, and *may* include removal" [italics added];".

Yellowstone's backcountry cabins have a deep and compelling history; they are the physical evidence of park administration, both conducted by the U.S. Army and, subsequently, the National Park Service. The cabins serve as a modern-day management tool. The park intends to maintain a network of both historic and non-historic backcountry cabins, because they are minimum tools necessary to facilitate backcountry management, inventory, monitoring, and research, and because the historic structures are significant cultural resources worthy of continued protection and use.

## WILDERNESS MANAGEMENT (GENERAL)

38. Comment: The proposed project does not appear to respect the goal of wilderness management. Rather than bringing the land under temporary control for the purpose of reestablishing natural conditions, the project would permanently trammel the wilderness…The objective of the project is to protect backcountry cabins, which, while a laudable and important goal, is not an objective related to preserving wilderness character. The argument presented is that the EA "provides for long-term beneficial effects to wilderness through the reduced potential for extreme fire-suppression activities that would be used to save structures in the park"…While this may be true, as noted above, there are other methods to fireproof structures that leave NPS the discretional ability not to engage in "extreme fire-suppression activities."

Response: The proposed action in the Yellowstone National Park *Wildland-Urban Interface Fuels Management* plan adheres to the goals and provisions of the 1964 Wilderness Act and the National Park Service Reference Manual (RM 41): Wilderness Preservation and Management. These guidelines state that the National Park Service will manage wilderness areas (designated, proposed, or recommended) for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness (National Park Service 1999). The management of structures within Yellowstone National Park proposed wilderness is a key element in this program. The backcountry cabins are administrative and historically significant sites that facilitate the implementation of resource management and protection.

## MINIMUM TOOL ANALYSIS AND WORKSHEET

39. Comment: . . . I urge you not to allow the extensive helicopter and chainsaw use proposed in the fire project. It is incompatible with the Park's requirement to manage wilderness. Instead, I urge you to use Yellowstone staff, who are experienced in low-impact methods such as horse transport and hand tools. No mechanized equipment should be used in this project.

40. Comment: The Minimum Requirement Analysis conclusions are vague (and . . . inherently flawed), and leave the choice of mechanized or non-mechanized management actions up to discretionary decision making. This failure to clarify the specific actions of the preferred alternative prevents full impact analysis by NPS and prevents specific, meaningful comment from the public.

41. Comment: . . . the use of mechanized equipment to conduct the work represents a violation of the spirit of the Wilderness Act, which sought to protect a place free of mechanization, where primitive frontier skills would be tested.

42. Comment: The Minimum Required Analysis (MRA) prepared for this EA has major flaws which require immediate corrections. First, the National Park Service has not identified a "necessary wilderness objective" for the project. . . .The NPS . . . fails to indicate that wilderness management principles must be adhered to, nor does it indicate that goals of protecting backcountry cabins conflict in any way with wilderness management. The lack of an approved "YNP Backcountry/Wilderness Plan" cannot be used as grounds disregarding the park's responsibilities under the Wilderness Act. . . .

43. Comment: Similarly, the rationale for using motorized tools is flawed and misleading to the public. In answering question 4 in Part A, NPS states that "Motorized tools will be used only when non-motorized tools are not appropriate or to mitigate natural and cultural resource impacts. . . ." It is unclear why non-motorized tools would ever be inappropriate in a wilderness setting, or why natural and cultural impacts to a degree requiring motorized mitigation would be present in a wilderness setting. Further rationale for using motorized equipment is at odds with the NPS admission in the MRA that "Use of hand tools and pack stock is quieter and complies with wilderness legislation"…Use of hand tools is deemed "inherently more dangerous" for tree thinning. This reasoning ignores the fact that Park Service crews are highly trained and skilled in wilderness management, including the use of hand tools; if NPS crews are not trained and skilled in these practices, they should be.

44. Comment: Pack animals are similarly dismissed as a means for all wilderness work. Pack stock are deemed as more intrusive due to impacts on soil, vegetation though direct impact and introduction of exotics. If this is the case, how can an extensive system of pack outfitting permits be explained? Does visitor enjoyment and preferred mode of access then superseded compliance with the Wilderness Act? Do weed-free hay requirements not work to minimize exotic plan introduction? These questions require answers before the MRA arguments can be assumed valid.

45. Comment: The use of motorized equipment is promoted based on safety, efficiency and less resource damage. Safety, as noted above, is based on large part upon skill and experience level, both of which NPS should be encouraging in its employees. Efficiency is specifically disallowed by the Minimum Requirement Concept: " . . . the potential disruption of wilderness resources and character will be considered before, and given significantly more weight than, economic efficiency and convenience. . . ." Motorized equipment is promoted based on the allegation that it creates less resource damage than hand tools and stock. . . .The remaining rationale pertains to soundscape and wilderness values, and is as flawed as the rationale for stock. Soundscape protection is a primary goal of NPS and is clearly defined as a priority in the Management Policies of 2001 . . . Use of aircraft, no matter how short the duration, is an adverse impact to soundscapes. Use of aircraft for a non-emergency purpose violates the park's own policies. . . .

46. Comment: Finally, the Minimum Requirement Analysis is flawed due to an arbitrary decision of preferred alternative. Alternative 1 (no motorized equipment) is stated as the only approach that would comply with wilderness legislation. Alternative 2 (motorized/mechanized use) "will not comply with wilderness legislation. . . ." Alternative 3 is presented as a "combination" of the first two alternatives. Under Alternative 3, "park managers can make sound decisions" about whether or not to use motorized and mechanized equipment. This open-ended alternative does not comply with Minimum Tool Analysis because no decision is made and work could proceed similar to Alternative 2 at a majority of cabins, resulting in non-compliance with wilderness legislation.

47. Comment: . . . the Minimum Requirement Analysis must be redone.

48. Comment: . . . if the need is overwhelming to thin and manage [the cabins], please do so with minimal impact to the wilderness you are charged to protect. I do not support helicopters or logging trucks to remove timber. I don't believe that chainsaws would be appropriate either.

49. Comment: No mechanized equipment should be used in this project.

50. Comment: The Preferred Alternative vaguely leaves the possible treatment methods up to managers' discretion, by simply allowing a combination of motorized and non-motorized treatments, to be decided for each location. This means the public really does not know what the park will do in terms of minimum tool decisions for these proposed fuel treatment sites.

51. Comment: The minimum requirement analysis provided in the EA is flawed because responses to various steps in the analysis are incorrect. . . .Neither of [the conditions outlined in NPS Wilderness Management Policies at 6.3.5] exist to justify the use of helicopters and mechanized equipment for the proposed project. Therefore the conclusion of the minimum requirement analysis conflicts with NPS policy. However, preparers of the minimum requirement worksheet erroneously answered "No" to the question, "Does action conflict with legislation, planned wilderness goals, objectives or

future desired conditions?" Not only does the action conflict with NPS policies governing minimum requirement, it also conflicts with other areas of NPS policy [such as NPS Management Policies at 6.3.10.1.]. . . .The continued existence of the 25 line cabins affected by the proposed action have not been shown to be the minimum necessary to carry out wilderness management objectives. Therefore, the minimum requirement worksheet's assertion that the proposed action conforms to an approved YNP Fire Plan is irrelevant – the park's fire plan does not trump national agency policy, which clearly articulates that an action must be necessary for a wilderness management purpose and conform to a park plan…NPS Management Policies at 6.3.8 state: "Cultural resources that have been included within wilderness will be protected and maintained…using management methods that are consistent with the preservation of wilderness character and values." Use of helicopters and motorized equipment is completely inconsistent with protection of wilderness character and wilderness values! The minimum requirement worksheet erroneously answers another question: "Can action be accomplished through a less intrusive action that should be tried first?" The park answered this as "No" – this is blatantly incorrect. As evidenced by the patrol rangers who not only built but accessed these same cabins by non-motorized means, it clearly is completely possible to access them today as well by non-motorized means. The early rangers used hand tools to fell trees and construct those cabins . . . it is implausible that today the minimum tool must be a chainsaw!

52. Comment: The main [faulty] rationales provided in the preferred alternative are that motorized support is necessary because: It eliminates the risk of bringing weed seeds into the wilderness by using a helicopter instead of packstock. . . .Enhances worker safety by using a helicopter rather than foot access to decrease potential encounters with dangerous wildlife…Helicopters are safer than foot travel or horses. . . .Motorized support is necessary to enable the project to be completed as quickly as possible, which will hypothetically protect firefighters who then won't need to place themselves at risk to protect the cabins if there is a future wildfire. . . .

53. Comment: The EA attempts to make a safety case for the use of helicopters to transport fuels treatment personnel . . . the only safety excuse for using motorized equipment in Wilderness is for emergencies.

54. Comment: [T]he 'minimum requirement analysis worksheet' did not provide very convincing evidence that chainsaws and helicopters in areas managed as wilderness were necessary, or that their use complied with the NPS Management Policy that wilderness character should be given much more weight than economic efficiency and convenience. I greatly respect the skills and attitudes of national forest wilderness staff who abide with wilderness regulations and urge NPS to adopt a similar approach to management. It has some human benefits: the pride and pleasure that comes with mastering tools used by previous generations in wilderness settings. Mainly however, I think this approach should be adopted by NPS because of its important resource benefits with regards to the natural soundscape and the fact that slower and more careful work is more likely to result in successful application of the mitigation measures.

**The following response addresses comments 39-54:**

The proposed action adheres to the goals and provisions of the 1964 Wilderness Act and the National Park Service Reference Manual (RM-41) *Wilderness Preservation and Management*. These guidelines state that the National Park Service will manage wilderness areas (designated, proposed, or recommended) for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness (National Park Service 1999). Management of structures within Yellowstone National Park's proposed wilderness is governed by these policies. Many of the backcountry cabins are historic and part of the historic character of Yellowstone National Park's backcountry.

Both the justification for backcountry cabins in Yellowstone National Park and the need to protect these cabins are consistent with the minimum requirement concept as stated in the Wilderness Act. The National Park Service wilderness objectives include the ability to manage and protect park natural and cultural resources and ensure wilderness backcountry preservation for future generations. This necessitates the use of backcountry cabins to protect and monitor these resources and the ability to protect these cabins as historic structures and facilitate the management and protection of wilderness resources.

In writing the implementation plans for the proposed projects, the techniques and types of equipment needed to ensure that impacts to wilderness resources and character are minimized are subject to the minimum requirement analysis process. National Park Service RM-41 requires wilderness managers to subject all wilderness management activities that may affect wilderness resource and character to the minimum requirement concept. The minimum tool analysis will be completed for each proposed activity.

To clarify what is presented in the EA, in the implementation of the wildland-urban interface fuels reduction for the backcountry cabins; no motorized equipment, motorized vehicles, or helicopter landings would be used to accomplish the project in proposed wilderness. Primitive tools like crosscut saws and axes will be used to carry out this plan within proposed wilderness.

Access to the backcountry sites would be accomplished through non-motorized means. Stock use and foot travel will be the main modes of transportation for personnel, recognizing that stock use does result in some adverse impacts to resources, for example, stock use contributes to trail erosion and proliferation of exotic weeds. Weed-free hay will be used to help reduce the spread of exotic plant species.

Soundscape protection is a primary goal of the NPS and the use of aircraft is an impact to soundscapes. Helicopter landings will not occur unless their use is indicated by the minimum requirement analysis.

Exceptions to the above mentioned minimum tool analysis would be made only under the policies of the Wilderness Act, NPS Director's Order and Reference Manual 41 to meet minimum requirements for the administration of the area for the purposes of this act,

including measures required in emergencies involving the health and safety of persons within the area (Wilderness Act, Public Law 88-577, 1964; NPS Reference Manual 41, Section 6.3.5). For example, if a faller's assessment showed that a portion of a tree top could break out and endanger the life of the faller, a chainsaw would be used to limit exposure time, instead of crosscut saw.

## QUESTIONS ABOUT OR REQUESTS FOR ADDITIONAL ANALYSIS

55. Comment: Despite modeling supporting 20-ft crown spacing, we remain concerned that thinning a lodgepole pine stand could exacerbate windthrow. In addition, the thinned sites will experience unnatural drying conditions due to the open nature of the manipulated site. This drying-out process could have negative effects on other ecological processes…We request that all ecological impacts, including those addressed above, be addressed further prior to the decision document and in the parkwide fire plan.

Response: As stated on pages 51-52 in the EA, increased likelihood of windthrow is a recognized probability. Clumping of trees and variation of spacing as well as comparison to untreated stand density will be considered. "Feathering" of vegetation with increasing distance from the structure(s) would reduce the potential for increased windthrow in the treatment areas. It is anticipated that the effects on soil drying will be negligible because: 1) stand thinning, as opposed to complete overstory removal, will retain shading and not accelerate direct soil drying; and 2) the soil moisture that would have been used by the removed trees and lost via transpiration will alternately remain in the soil and be available to the remaining plant community.

56. Comment: We request that an analysis be conducted to determine how feasible it is to modify the both frontcountry and backcountry structures in the proposed areas so that they are at a lower risk of flammability.

Response: Fire resistant materials will be incorporated into backcountry cabins and frontcountry buildings as maintenance or replacement is required.

57. Comment: Given the proposed areas for treatment, we request that a thorough analysis be provided that states what buildings are considered historic in each area. . . . with an analysis of their historical importance. . . .

Response: Appendix B: "Cultural Resources in the Proposed Treatment Areas", found on page 109 of the EA, provides a detailed table listing National Register status of historic properties in each of the areas proposed for fuels reduction.

58. Comment: . . . an analysis of the impact of the 1988 fires on backcountry cabins and the success of protection methods undertaken at that time would help the public better understand the range of options available.

Response: Where protection measures such as thinning, limbing, sprinkler installation and wrapping with fire shelters was implemented, structures were saved. Thinning was unplanned and extremely heavy. Where measures were not implemented, (Sportsman Lake) buildings were lost.

59. Comment: Do park staff utilize all the cabins every summer? Or are a few of them used exclusively by carpenters every summer while they are working on them?

Response: Several cabins are full-time summer residences for rangers (Thorofare, Heart Lake, Trail Creek, Pelican Springs/Fern Lake, and the Shoshone Lake cabins). Resource monitoring crews use Clear Creek cabin during the summer season. Other cabins are used regularly by rangers, researchers, park biologists, and trail crews (Cold Creek, Upper Miller Creek, Calfee Creek, Cache Creek, Lower Slough Creek, Hellroaring, Lower Blacktail, Mary Mountain, Union Falls, Three Rivers Junction, and Fawn Pass). Many cabins (Harebell, Fox Creek, Howell Creek, Lamar Mountain, Elk Tongue, Buffalo Plateau, Crevice Creek, Sportsman Lake, Daly Creek, and Buffalo Lake) are used extensively for boundary patrol during the fall hunting season.

60. Comment: Have any backcountry cabins ever been destroyed throughout their long, historic lifetimes? If so, how many? Where and when? This data needs to be addressed in the EA. In other words, what are the actual risks of losing the cabins in major conflagrations such as those of 1988?

Response: Three cabins have been destroyed since 1988. The historic Sportsman Lake Cabin and the non-historic Deaf Jim Cabin were destroyed by wildfires in 1988 and 2001, respectively. Both were located in areas of untreated fuels. The historic Park Point Cabin was destroyed by fire when backcountry visitor(s) started a campfire on the cabin porch in 1992.

61. Comment: Throughout the EA, the clear message is that fire is a negative impact on wilderness – the EA cites burned trees, displaced wildlife, impacts to soil, etc. as examples of "negative wilderness impacts." This is shockingly inaccurate, since fire is a natural process that is highly compatible with wilderness – it is also shocking that, of all parks, it is Yellowstone NP which is making this claim, in light of the conditions of the park's ecosystem today, not long after the 1988 fires!

Response: Yellowstone National Park regrets any miscommunication in the EA that fire is a negative impact on wilderness. The National Park Service sees fire as a vital natural phenomenon and stands at the forefront of wildfire use nationally. The proposed fuels reduction program is designed so that no wildfire will ever require suppression based upon the fact that it is threatening a park structure. Many fires have been suppressed solely because structures were in their path. If this program is implemented, one of the barriers to fire use will be removed because fires will be allowed to burn around administrative sites.

63. Comment: While I agree that protection of limber and whitebark pine and aspen seedlings is desirable, how will areas of artificially created and maintained woody vegetation affect surrounding forests and natural processes?

Response: The issue of natural processes being affected by areas of artificially created or maintained woody vegetation is one of scale. At the drainage or landscape scale, such manipulation would have negligible consequences on various processes because of the relatively small treatment areas. At the local scale, however, some minor consequences may be realized. For example, opening the canopy may allow for more tree seedling establishment of shade intolerant species (like lodgepole pine), competition among a single species for sunlight among understory seedlings and saplings, or an increase in vegetation in response to increased sunlight. Similarly, removal of woody fuel accumulations may alter local rates of nutrient cycling or affect the microhabitat utilization of some small mammal species. These consequences are greatest for the individuals directly affected, but appear trivial at the population or community level especially across broad spatial and temporal scales.

**COST-BENEFIT ANALYSIS**

64. Comment: …a cost benefit analysis is needed, specifically comparing the cost of the proposed thinning around the cabins with their worth, and compared to the cost of emergency fire-proofing measures such as were taken in 1988 around many of the cabins.

Response: The park is not required to do a cost benefit analysis; we are required to discuss costs, environmental or other. The decision to retain the cabins was made in other plans (refer to comment 3). This EA addresses the effects of thinning projects.

About $20,000 would be allocated for each cabin treated. This would include wages and benefits for workers equal to 6 workers for 2 weeks each. It covers cost of transportation, training, all equipment, and per diem or food. It covers the cost of planning, supervision, visits by rangers and resource managers and archeologists/cultural resources specialists to assess potential impacts.

The value of a cabin is more difficult to quantify. The cost to replace the Sportsman Lake cabin that burned during the 1988 Fan fire was more than $100,000. While this amount may seem excessive on the surface, there is a myriad of hidden costs associated with a wilderness construction project. The cost would be substantially higher now. The costs associated with the loss of a backcountry cabin are even harder to quantify. The

value of an historic cabin may be higher to cultural resource proponents that enjoy seeing tangible evidence of human and NPS and military history. In addition, the loss of a backcountry cabin could potentially lead to patrols not taken.

Costs of emergency fire proofing measures can be calculated. A 20-person crew costs conservatively $2000 per day in wages; five days wages would cost $10,000. Helicopter transportation is a "given" during a suppression operation.

It would cost $4000 to transport crews each direction. In addition fire meals and transportation of meals would be around $50 per person per day. Total cost of the operation would be $23,000 without considering transportation of the crew to Yellowstone National Park, a cost not associated with the preferred alternative.

In addition it is very difficult to guarantee an environmentally sound, well planned project when it is undertaken by firefighters who do not have a vested interest in the area and may by working at a frenzied pace. Following unplanned fuels treatments in the past, Yellowstone firefighters and resource personnel have had to spend more than $10,000 to do post suppression rehabilitation of the site.

65. Comment: The EA fails to address the annual cost of maintaining the deterioration of these 30 cabins that range from normal wear and tear, to damage incurred by wild animals. The State of the Park report, 1999, estimates the cost of repairs to the Harebell and Fox Creek cabins at $50,000 each. Both are listed in the EA…These costs, combined with the labor costs of the preventative measure of Alternative B and the cost of efforts to save the cabin when a major fire does occur in the area anyway, should be compared in the EA to the cost of a tag-along camp cook – a volunteer perhaps.

Response: No money is spent annually on the upkeep of the backcountry cabins. There is no cyclic maintenance program for the cabins, though various park employees may do routine maintenance occasionally. The $50,000 estimate in the *State of the Park* report was based on a proposal to completely restore the Harebell and Fox Creek cabins. This project has not been scheduled or implemented.

While cooks are not employed for backcountry crews, small crews often cook for themselves. Volunteer cooks/camp tenders have been employed for previous hazard fuels reduction projects (Fern Lake cabin- August 1998) and do reduce costs a bit, but not appreciably. During fire suppression, all people must be fully qualified firefighters; thus the use of volunteers or untrained personnel would not be appropriate.

## THREATENED AND ENDANGERED SPECIES

66. Comment: …and any thinning of whitebark pine could jeopardize the survival of the grizzly bear. Thinning around [the cabins on Observation Peak and Lamar Mountain] – and any others that may have whitebark pines around them – would require a Biological Opinion from the USFWS.

Response: The “Grizzly Bear” section of the Biological Assessment on page 130 of the EA states “No whitebark pine trees would be affected by the treatments, any whitebark pine trees encountered would be left uncut, and no new roads would be created as a result of the project.”

67. Comment: I am also concerned about habitat for the threatened and endangered species utilizing certain areas to be thinned, particularly the Bald Eagle.

Response: It was noted in the Biological Assessment portion of the document (p. 121) that the proposed actions. . . .”may affect but are not likely to adversely affect. . . .” any listed species, including bald eagles and grizzly bears, in Yellowstone National Park. This conclusion was based on site-specific mitigation measures (e.g., identifying and leaving any potential roost sites) and temporal restrictions on project implementation (e.g., conduct treatments prior to September 1) being employed. The U.S. Fish and Wildlife Service concurred with this opinion during informal consultation.

# MINIMUM REQUIREMENT ANALYSIS WORKSHEET
## YELLOWSTONE NATIONAL PARK

YELL 5/2001)

**PROPOSED ACTION:** Wildland-Urban Interface: Hazard Fuels DATE: 5/15/03

LEAD PERSON(S): Perkins, Mitchell, Hafer WORK UNIT(S): USNPS YNP

PART A: Minimum Requirement *(should the action be done in proposed wilderness)*

**1** IS ACTION AN EMERGENCY?

YES → ACT ACCORDING TO APPROVED EMERGENCY MINIMUM TOOL CRITERIA

NO ↓

Answer: ☐ Yes ☒ No

Explain: Action is not under an immediate time constraint nor is it an immediate threat to human life safety, or natural or cultural resources.

**2** DOES ACTION CONFLICT WITH LEGISLATION, PLANNED WILDERNESS GOALS, OBJECTIVES OR FUTURE DESIRED CONDITIONS?

YES → DO NOT DO IT

NO ↓

Answer: ☐ Yes ☒ No

Explain: This action conforms to an approved YNP Fire Management Plan. Patrol cabins in the park backcountry were addressed in the parks preliminary wilderness proposal in 1972. There is no approved YNP Backcountry/Wilderness Plan to date. Under RM 41, Use of tools must conform to the "minimum requirement concept".

**3** IS ACTION PRE-APPROVED BY THE WILDERNESS AND BACKCOUNTRY OR OTHER PARK MANAGEMENT PLAN?

YES → DO ACCORDING TO APPROVED CRITERIA

NO ↓

Answer: ☐ Yes ☒ No

Explain: There is no approved YNP Backcountry Management Plan. The activity is allowed by the Yellowstone Fire Management Plan and Park Aviation Management Plan within the strict parameters provided by the Minimum Tool Analysis process.

**4** CAN ACTION BE ACCOMPLISHED THROUGH A LESS INTRUSIVE ACTION THAT SHOULD BE TRIED FIRST? (Visitor Education…)

YES → DO IT

NO ↓

Answer: ☐ Yes ☒ No

Explain: Yellowstone's backcountry patrol cabins are in place to facilitate preservation, maintenance, and scientific investigation, and wilderness and resource protection of park proposed wilderness. They are also part of the history and tradition of park management and are thus significant cultural resources. Fuels treatment is a portion of a strategy to protect cabins including fireproofing cabins.

**5** CAN ACTION BE ACCOMPLISHED OUTSIDE OF PROPOSED WILDERNESS AND STILL ACHIEVE ITS OBJECTIVES?

YES → DO IT THERE

NO → DO PART B

Answer: ☐ Yes ☒ No

Explain: The fuel reduction will be accomplished in 3 frontcountry developed areas and around 31 backcountry sites.



PART B: Minimum Tool *(how the action should be done in proposed wilderness)*

**6** DESCRIBE, IN DETAIL, ALTERNATIVE WAYS TO ACCOMPLISH THE PROPOSED ACTION * (These may include, primitive skill/tool, mechanized/ motorized, and/or combination alternatives) (Use addition pages if necessary)

* Minimum questions to answer for each alternative:
- What is proposed?
- Where will the action take place?
- When will the action take place?
- What design and standards will apply?
- What methods and techniques will be used?
- How long will it take to complete the action?
- Why is it being proposed in this manner?
- What mitigation will take place to minimize action impacts?

GO TO NEXT STEP

**7** EVALUATE WHICH ALTERNATIVE WOULD HAVE THE LEAST OVERALL IMPACT ON WILDERNESS RESOURCES, CHARACTER AND VISITOR EXPERIENCE **

** Minimum criteria used to evaluate each alternative:
- Biophysical effects
- Social/Recreational/Experiential effects
- Societal/Political effects
- Health/Safety concerns
- Economical/Timing considerations

GO TO NEXT STEP

**8** SELECT AN APPROPRIATE, PREFERRED ALTERNATIVE

IF REQUIRED → **9** ATTACH TO APPROPRIATE PROJECT PROPOSAL/CLEARANCE FORM FOR REVIEW AND APPROVAL/DISAPPROVAL SIGNATURE

Alternative 1: Use only hand tools for all fuel reduction activities; use only pack stock to deploy personnel, equipment, and supplies.
**PRO:** Use of hand tools and pack stock is more primitive, quieter and complies with wilderness legislation.
**CON:** Use of hand tools for all falling activities would be inherently more dangerous for tree falling due to: 1.) More people and longer times spent for falling activities, 2.) Hand tools preclude use of safety enhancing techniques such as quarter cutting and back-boring, and 3.) Cumulative fatigue caused by use of hand tools.

Alternative 2: Use of chainsaw for fuel reduction activities, use helicopter to supply crews and equipment to sites.
**PRO:** Use of chain saws and helicopters may be safer for crews, more efficient to accomplish tasks and will lessen the overall time crews and activities will work in the wilderness. Some natural and cultural resource damage may be alleviated by not using stock animals. Helicopters may lessen resource damage by: 1.) Not promoting the proliferation of exotic weed species, 2.) Not impacting soils or promote erosion, 3.) Lessening human wildlife confrontations via flight rather than trail travel, and 4.) Impact on the soundscape is transient
**CON:** Use of chain saws and helicopters would be more imminently intrusive to wilderness values and would not comply with wilderness legislation.

Alternative 3: Motorized tools such as chainsaws and helicopter landings would not be used unless required in an emergency involving the health and safety of persons within the area.
**PRO:** No impact on wilderness soundscapes. By using non-motorized equipment to accomplish work objectives, park managers can make sound decisions whether to use hand tools, non-mechanized transportation to deploy crews and equipment based on worker safety, natural and cultural resource protection, visitor use, and wilderness values.
**CON:** By using non-motorized equipment for backcountry hazard fuel reduction, there may be more time required for accomplishing work objectives requiring longer stays in park wilderness.

**List preferred alternative and give justification:**
Upon review and comparison, alternative 3 is the preferred alternative for backcountry hazard fuel reductions because:

A. It is the method that has the least impact to park natural and cultural resources.
B. It is at least as safe if not safer than the other 2 alternatives to park staff.
C. It will minimize intrusion to park wilderness values, and on park soundscapes.

No motorized equipment, motorized vehicles, or helicopter landings would be used in proposed wilderness unless required in an emergency involving the health and safety of persons within the area. The minimum tool analysis will be completed for each proposed activity.